Title: Cytotoxic activity of Ecballium elaterium fruit extract on three cancer cell lines

Abstract

Background& objective: *Cancer is a common cause of mortality in all of the world specifically in middle age and elderly people. The prevalence of cancer is growing up because the lifetime is going up.*

In consequence finding on effective treatment for cancer is a very important aim .Ecballium elaterium is a native plant in Ardabil. It was used in ancient medicine and showed immunomodulatory effect in a few studies. Therefore we decided to study the cytotoxic effects of Ecballium elaterium on some cancer cell lines.

Methods: *The plant was collected from the Ardabil mountains during the summer. We extracted aqueous of ecballium elaterium fruit and freeze dried it. Three cancer cell lines including Hep-G2, AGS and KYSE-30 were purchased from Pasteur institute of Iran. After 48 hr incubation, cell viability assessed by three methods; including MTT, neutral red and FRAME assay. The concentration of extract was 0.1, 0.2, 0.4, 0.6, 0.8, 1, 1.5, 2, 2.5 (mg/ml). IC_{50} for each one was calculated.*

Results: *IC_{50} for Hep-G2 cell line in MTT assay was 1.4923(mg/ml), in FRAME method was 0.5506(mg/ml) and in neutral red was 0.2123(mg/ml).IC_{50} for KYSE-30 cell line in MTT assay was 1.1050(mg/ml), in FRAME method was 1.2608(mg/ml) and in neutral red was 1.2296(mg/ml). IC_{50} for AGS cell line in MTT assay was 1.0168(mg/ml), in FRAME method was 1.3088(mg/ml) and in neutral red was 1.3022. Almost in 3 cell lines, 100% of cells were died in concentration of 2 mg/ml.*

Conclusion*: aqueous extracte of ecballium elaterium fruit has a cytotoxic effect on cancer cell lines including Hep-G2, AGS and KYSE-30. It seems that the effect on Hep-G2 is more than the others.*

Key words: *Ecballium elaterium, cytotoxic, Hep-G2, AGS, KYSE-30, MTT assay, neutral red, FRAME assay, IC_{50}*